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### BIODIVERSITY

## A new rice every day?

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Natwarbhai by his beloved rice fields

*The small farmer is increasingly getting the short shrift, and control over farming is moving into the hands of the private corporate sector. This does not paint a happy picture.*

Natwar Sarangi could eat a new variety of rice every day of the year. None of it bought in the market. When I met this remarkable farmer in a small village in Odisha, I realised the magical potential of India's 'ordinary' peasants. A potential sadly neglected by our agricultural bureaucracy and 'development' planners.

Natwarbhai, 80+, is a resident of Narishu village, near Niali in Cuttack district. A retired schoolteacher, he has been practising organic farming for the last decade or so, and swears by its potential to feed India's population. He says some of the varieties he grows yield over 20 quintals per acre, higher than the so-called 'high-yielding' varieties that farmers around him get after using chemical fertilizers and pesticides. And he spends much less, since his main inputs are gobar, natural pesticides when occasionally needed, and labour.

Natwarbhai was earlier a 'modern' farmer, lured into it by officials and traders, involving high-yielding varieties, chemical fertilizers, and pesticides. One day, while watching a labourer spray Carbofuran (a highly toxic pesticide), he was horrified to see him stagger and collapse. Rushed for treatment, the worker survived, but not Natwarbhai's faith in the new agriculture. Especially after the labourer told him: "I could not breathe, my head was reeling"; and especially after, having buried the remaining stock of Carbofuran in a pit in his fields, Natwarbhai "saw dead snails, snakes, and frogs floating in the water that had accumulated there; I immediately wondered what would be happening to the earthworms and micro-organisms that I knew kept the soil alive."

Natwarbhai switched to organic inputs, but with the high yielding varieties that the agricultural establishment had distributed. His son Rajendra, by now having become involved in a number of environmental movements, advised him to try traditional crop varieties. The problem was, most such varieties had gone out of cultivation in the area.

Around this time (1999), along with Rajendra another young man of the village, Jubraj Swain, had been active with relief and reconstruction work after a super-cyclone. Now they set off to find traditional rice varieties; travelling over 5000 km within (and a bit outside) Odisha, they brought back dozens of varieties still being grown by so-called 'backward' farmers. Natwarbhai tried them all, noting down their names, characteristics, and productivity. He and Jubraj continued even after the tragic death of Rajendra due to cerebral malaria, eventually reaching the astounding figure of 360 varieties (90per cent of these from Odisha). When I expressed astonishment at this, Natwarbhai laughed:

“we are aiming to have at least 500. This is in any case only a small fraction of the total diversity that Indian farmers have created”.

So true. I remember when coordinating India’s National Biodiversity Strategy and Action Plan process a decade ago, I had come across the mindboggling fact that the country’s rice diversity was anything between 50,000 and 300,000 varieties!

How does Natwarbhai keep track of this diversity, year after year? He said he and his colleagues kept an album, in which they noted down each variety’s characteristics. I was later shown a two-volume set of this album by Sudhir Pattnaik of the Oriya journal *Samadrusti*; it had tiny packets of each kind of rice variety, with key features of their growth, performance, and values written alongside.

Diversity was nice, but would it feed India’s growing population? Natwarbhai was categorical: “Without doubt. Firstly, I get as much or more average rice production on my land as those using chemicals in this region; secondly, I can grow pulses as a next crop, and then gourds or other crops as the third ... all on the same plot of land. And I get better fodder and mulching material. Overall productivity is therefore higher than my neighbours who use new seeds and chemicals. If land is not turned to non-food cash crops like tobacco, we would easily produce enough food with organic farming.”

So why then were his neighbours not switching to organic? Natwarbhai explained that the government and corporations were constantly giving ‘incentives’, e.g. subsidies on chemicals, and filling the cultivators’ minds with promises of bumper crops and high returns. Another factor was that many of the traditional varieties had tall stalks, and ‘lodged’ (fell down) if there were unseasonal rains. But Natwarbhai asserted that even with this, productivity did not drop significantly, provided it did not keep on raining. Yet another reason was that many of the lands here were being cultivated by sharecroppers, who had to do what their absentee landlords told them to.

I reflected on this a bit. Farmers here were probably also being seduced by news from other regions of India, some of which had achieved over 30 quintals per acre; no-one was telling that this was possible only with increasing amounts of external inputs, that the land would simply not sustain this intensity of cultivation for long, and that growing costs of inputs would eventually reduce profit margins. Official records showed that in any case, HYV rice had yielded an average of around 15 quintals in Orissa.

Other farmers were slowly getting interested in Natwarbhai’s methods. He and others have organised dozens of meetings with farmers, and offered free seeds for those willing to test them out (on condition that if they had a good crop, they would return twice the amount, to go into a grain bank). The journal *Samadrusti* also did its bit in public outreach. If only the government would help, these efforts would go much further. Unfortunately even civil society organisations were not always helpful; Natwarbhai pointed to a patch of black-grain paddy (*Kali Jiri*) swaying gently in the breeze, and sadly recounted how an institution from Chennai run by a famous agricultural scientist had taken some samples, and then claimed credit for the variety!

I asked Jubraj why he had not gone looking for a job in the city, like his other young colleagues? He was, after all, a graduate in history. His answer was simple: “I enjoy this. I think it is more worthwhile than a job in the city”. Productivity on his land? “I’m getting 18-20 quintals per acre; those using new seeds and chemicals here were getting less, while spending more.” In a general scenario of the newer generations turning away from occupations like farming, it was good to see the young man wanting to carry on Natwarbhai’s mission.

In a recent address to an international conference on biodiversity in Hyderabad, Prime Minister Manmohan Singh said: “Biodiversity, found in our forests and our fields, could provide us keys to the solutions of the future. So we need to build a movement to conserve traditional varieties of crops.” Nice words. But the Indian government’s agricultural policies and programmes have systematically destroyed the diversity and knowledge of thousands of years of intelligent, innovative farming systems. Increasingly they are marginalising the small cultivator, and handing over controls over farming to the private corporate sector. Efforts like Natwarbhai’s and Jubraj’s, small as they may seem, are crucial elements of sustainability that India is going to desperately need when its food production systems face ecological and social collapse.

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